

CLAIMS

What is claimed is:

1. An actuating drive for a plasticizing unit of an injection molding machine, comprising:

a spindle drive having a stationary housing section and an electric motor with a drive element, the spindle drive further including a control mechanism arranged between the drive element and the housing section; and

an energy storage device coupled with the spindle drive for force transmission therebetween,

wherein the spindle drive loads the energy storage device in a return stroke phase of the spindle drive and unloads the energy storage device in a feed phase of the spindle drive, said unloading of the energy storage device boosting power of the electric motor, and

wherein the control mechanism operates in parallel with the energy storage device to actively modify an effective actuating force of the energy storage device depending on a stroke position of the spindle drive.
2. The actuating drive of claim 1, wherein the control mechanism includes an adjustable force coupling between the drive element and the housing section.

3. The actuating drive of claim 2, wherein the adjustable force coupling comprises a brake which is activated depending on a stroke excursion, or a selectively releasable locking device.
4. The actuating drive of claim 3, wherein the locking device is implemented as a coupling.
5. The actuating drive of claim 3, wherein the locking device is implemented as a selectively releasable one-way locking device.
6. The actuating drive of claim 1, wherein the spindle drive controls a stroke motion between a plasticizing cylinder and a plasticizing screw, and wherein the control mechanism comprises a friction brake that selectively locks the energy storage device at a stroke end position and, at the beginning of a filling phase of the plasticizing cylinder, impedes a return stroke force of the plasticizing screw and opposes said loading of the energy storage device.
7. The actuating drive of claim 1, wherein the spindle drive controls a stroke of the plasticizing unit relative to a mold closing unit, the control mechanism further comprising a selectively releasable locking device capable of automatically locking the drive element, which is biased by the energy storage device, relative to the stationary housing in at least one stroke end position of the plasticizing unit.